Soxtherm™ Extraction Standard Laboratory Module (SLM™)

General Overview of the Soxtherm™ Extraction SLM

The Soxtherm™ Extraction SLM is an adaptation of a commercial instrument to function within the operating parameters of the Contaminant Analysis Automation (CAA) SLM paradigm and standards.

Environmental Protection Agency (EPA) Method

This instrument in the standard configuration performs extraction for USEPA method 3541 "Automated Soxhlet Extraction for Water Insoluble PCB's, Slightly Water Soluble PCB's."

Standard Analysis Model (SAM)

The Soxtherm™ SLM supports any SAM system requiring the extraction of organic compounds from solid matrices.

Advantages

The adaptation of the standard Soxtherm™ to the CAA SLM configuration is an example of the versatility of the CAA Program. The reconfigured instrument can function either as a standalone system or can be integrated into a more complex automated one. In either case, the plug-and-play functionality of the SLM paradigm is apparent.

General Description of the Soxtherm™ Extraction SLM

The operation of the Soxtherm™ instrument is fully automated after the samples have been loaded and the controller programmed with the proper parameters. To be adapted to the CAA requirements, the instrument had to be able to accept control setup information from the external task sequence controller (TSC) as well as to be able to respond to the TSC in the correct manner. To accomplish this modification, a second controller was developed and mated to the original.

RN95-053-006

Figure 1. The Soxtherm™ Extraction SLM.

The design of the Soxtherm™ was configured in a way that allowed the loading and unloading by the transport robot; thus, no modifications to the instrument were required. Samples are preloaded in the thimbles and placed into the extraction beakers by the analysts. The transport robot moves the sample from the input queue to the extraction position in the instrument.

Status

This SLM is now a working prototype.

Industrial Partner

ABC Instruments, Columbia MO.

Developers

The Department of Energy laboratory responsible for Soxtherm™ development is Pacific Northwest Laboratories.

Battelle
Pacific Northwest Laboratories

INEL

Los Alamos
NATIONAL LABORATORY

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Sandia
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Laboratories

University of Florida
University of Tennessee
University of Texas

LALP-95-94
April 1995

Los Alamos
NATIONAL LABORATORY

Los Alamos, New Mexico 87545

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